Malheur National Wildlife Refuge
Burns, Oregon

Narrative Report for period January 1 to April 30, 1953

Roster of Regular Personnel

John C. Scharff. . . . . Refuge Manager
Ray C. Erickson. . . . . .Wildlife Management Biologist
Marselle Leake . .Construction & Maintenance Supervisor (General)
Frank A. Sanderson . . . . . .Automotive Mechanic - Inspector
Albert Olofson . . . . . Refuge Maintenance Man (General)
Alfred S. Ludi . . . . . Refuge Maintenance Man (Carpenter)
Noel L. Cagle. . . . . Refuge Maintenance Man (General)
Eugene P. Heath, Jr. . . . . .Refuge Clerk (Typist)
Judd A. Wise . . . . . Refuge Maintenance Man (General)
Russell J. Wilson. . . . . Refuge Maintenance Man (General)
John Porter. . . . . Refuge Maintenance Man (General)

Temporary Personnel

Elmer T. Ash. . . . . Dragline Operator
Leonard N. Austin . . . . . Laborer
Raymond A. Austin . . . . . .Tractor Operator, 50 H.P. & Over
Roelan T. Blom. . . . . .Tractor Operator, 50 H.P. & Over & Oiler
Jack Cohoe. . . . . Laborer
Charles R. Davies . . . . . .Tractor Operator, 50 H.P. & Over
Walter F. Davis . . . . . Carpenter
Melzer Dexter . . . . . Carpenter
Edwin S. Forest . . . . . Laborer
Haywood Ross. . . . . Laborer
Kenneth R. Meservey . . . . . .Trapping Inspector
Cyrus Pratt . . . . . .Tractor Operator, 50 H.P. & Over
Robert C. Sayre . . . . . Student Assistant
Vernon C. Walker. . . . . Laborer

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Malheur National Wildlife Refuge
Third Period - Narrative Report
January 1 to April 30, 1953

I GENERAL

A. Weather Conditions.

The following weather information is a summary of records from the official weather station at Malheur Refuge headquarters:

Month	Precipitation	Max. Temp.	Min. Temp.
January	0.66	59	14
February	0.54	62	10
March	0.42	69	14
April	0.55	78	17
Total:	2.17	Extremes: 78	10

Precipitation recorded at the P-Ranch, Diamond and Double-O Ranch stations during the period was as follows:

Month	P-Ranch	Diamond	Double-O
January	0.92	0.39	0.19
February	1.02	1.03	0.45
March	0.35	0.44	0.19
April	1.31	0.93	0.30
Totals:	3.60	2.79	1.13

The past winter and early spring have been one of the mildest on record. Never did the temperature go below 10 degrees Fahrenheit. The ground was bare most of the time and little precipitation fell either as snow or rain. Despite the lack of snow, frost did not penetrate deeply into the ground.

B. Water Conditions.

The general snow conditions, lack of stream flow during the period and general drought conditions are only indicative of a very short water year so far as the Malheur Refuge is concerned. The one thing that may save the season is the possibility of a prolonged storm period during May and June. By the close of the period the Silvies River was running a fair head of water, perhaps sufficient to grow a partial hay crop in Harney Valley, and the same thing was true of Silver Creek. However, sustained flows cannot be expected with the amount of snow pack in sight and very little water may be expected to reach the lake areas.

No early spring or foothill runoff was had from the Blitzen drainage. The little snow on this watershed is high on the mountain and will

require warm weather or late rains to cause any amount of water to flow into the valley from that source and only the most favorable conditions will furnish enough water to fill the ponds and irrigate the hay meadows of the Blitzen Valley. It now appears that this water year will be the shortest of any since the Blitzen Valley was acquired. The year 1947 was similar in nature but considerable early water was enjoyed which filled many of the ponds, and late June rains furnished a good late flow which turned a bad season into a fairly good one.

The Silvies River is predicted to flow 70,000 acre feet of water for this year as against a ten-year average of 98,000 acre feet; the Blitzen is predicted to flow 50,000 acre feet as against an average of 65,000; and no prediction was made for Silver Creek but it was felt that the Warm Springs Valley, in which the Double-O is situated, would be short of sufficient water to provide a normal crop of forage. Naturally, these predictions will vary with temperature and moisture conditions. However, the water generally for this part of the country appears considerably short of normal.

Water level readings for Malheur Lake are available from gauges located at the mouth of the Blitzen River and at the Narrows. The first reading of the former location was made on April 3 at 4093.77 a.s.l. At the Narrows, however, readings are available for the entire period varying from 4092.84 feet on January 23 when the lake was free of ice, to 4092.47 feet on April 20, indicating that a steady decline already is under way. It appears that this decline may be expected to continue throughout the summer, judging from the amount of snow pack in evidence by the close of the period.

II WILDLIFE

A. Migratory Birds.

1. Populations and Behavior.

The very dry conditions throughout all but the Malheur Lake unit of the refuge were reflected in the fewer than average numbers of lesser snow geese and other waterfowl which used refuge meadows this year.

Whistling swan. Swans took advantage of the early breakup of ice on Malheur Lake and were first seen on January 29, reaching a peak during the last half of March. They moved through in a very leisurely fashion and about 500 swans still were around at the end of April.

Trumpeter swan. Again, no attempt to nest by any of the trumpeters was noticed this spring. Two swans died during the period, one disappearing completely and the other apparently another victim of avian tuberculosis, leaving a total of seven trumpeters all of which are living in the Double-O Ranch swan enclosure.

Geese. Very few geese were found on the refuge this year prior to nesting time because of the very dry condition of the meadows. Some fairly early water in the meadows southeast of Burns attracted several thousand snow geese and white-fronts, but for the most part, the geese pushed on through the Harney Basin without stopping long. In contrast with the shortage of migrating honkers, a substantial resident population of Canada geese appears to be having a successful nesting season, and for the first time in about three years, the margin of Malheur Lake is well populated with nesting pairs that are making good use of the abundant muskrat houses.

Ducks. As with the geese, most duck species were few in number, though canvas-backs were well represented, especially in the more open parts of Malheur Lake. The spring migrating numbers of baldpates seemed down, while shovellers continued their upward climb.

Sandhill crane. Though it is likely that the number of crane migrants was similar to that of last year, at no time did any comparable concentrations appear in Units 6 and 8 in the middle part of the Blitzen Valley. Our resident population has remained the same as last year.

American coot. Numbers of coots increased about 10 percent this year in migration, but about the same number as in 1952 remained to nest. The first nests appeared during the last ten days of April.

Shorebirds and waders. A few more dowitchers than usual were seen, but with the continuing high lake level, the migrating shorebirds still are few in comparison with the numbers seen when the lake was at a lower level in the spring.

Black-crowned night herons have become noticeably fewer in number during the past three years, while the numbers of great blue herons and American bitterns have increased.

Other waterfowl. Cormorants, pelicans and grebes were quite early in arriving and some of them still are coming in.

2. Food and Cover.

The high water level, together with the severely denuded condition of much of the hardstem bulrush throughout much of Malheur Lake, increased the vulnerability of over-water nests on this area this spring. Most of the muskrat houses in the central part of the lake had disintegrated prior to the beginning of goose nesting, and most geese were found nesting in the more dense cover around the margin of the lake where they should be more secure. With coots, grebes, terns, cormorants, egrets and herons, however, some loss may be expected until the current growth of bulrush will effectively reduce wind and wave action.

3. Botulism, lead-poisoning and other sickness.

No sickness among birds on Malheur Refuge was noted this period.

4. Banding.

Twelve white-crowned sparrows, one mourning dove and fifteen valley quail were trapped and banded at Malheur Refuge during this period.

B. Upland Game Birds.

1. Populations and Behavior.

Ring-necked pheasant. The very mild and open winter provided no worthwhile opportunity for trapping pheasants so this activity was not undertaken at Malheur Refuge this year. Pheasants wintered well and the dry spring gave promise of successful early nesting, though late high water on the refuge could be destructive to some nests along Blitzen Valley canals.

Valley quail. Practically no quail mortality from weather conditions was noticed. A few have been found dead around headquarters, some of which appear to have died after flying into office and shop windows. The 1953 quail breeding population is up about 10 percent over that of 1952.

European partridge. No observations on this species were made during the period.

Sage hen. Few sage hens occupied the refuge during the winter and spring because of the shortage of snow. Numbers of sage hens on the strutting grounds near Frenchglen were about the same as in 1952 and about one-third less than were seen in 1951.

C. Big Game Animals.

1. Populations and Behavior.

Antelope. As with sage hens, antelope took advantage of the mild winter to remain in the less protected parts of the range, and only a few harems and single bucks were seen on the refuge.

Mule deer. Losses of yearling fawns decreased somewhat this spring as more browse was available to them. Fewer deer were occupying the refuge throughout the winter, and at the same time, more deer were found on the lower slope of Steens Mountain.

How many?

D. Fur Animals, Predators, Rodents and other Mammals.

The mild winter provided unsafe ice on Malheur Lake throughout most of the period. Trapping conditions for beaver were good, on the other hand, with little ice on the watercourses of the Blitzen Valley at any time.

Beaver. Thirty-four beavers were trapped during the period, all of them being taken in the Blitzen Valley.

Muskrat. A total of 11,018 muskrats were trapped on Malheur Refuge this past trapping season, all but two of them being taken on Malheur Lake. The shortage of reliable trappers and the unsafe ice conditions throughout most of the trapping season were mainly responsible for the failure to approach the minimum recommended take as set forth in the Fur Harvest Quotas report. The pelts ran slightly larger than usual, but of the trapper sales receipts now in, the price averaged only $1.14 per pelt.

Mink. Sixty-nine minks were taken during the past trapping season on the refuge, all but seven of them being trapped in the Blitzen Valley. By far the majority of them were taken in administrative units three and eight.

Raccoon. Raccoon numbers have changed little during the past two years, and, animal for animal, are more destructive to waterfowl nests and young than any other mammal on the refuge.

Skunk. As with raccoons, skunks are about as common as last year, and the reduced catch this year is largely the result of less time spent trapping them rather than an indication of fewer animals.

Coyote. A few more coyotes were seen on the refuge during the winter than were seen a year ago, but by spring, their numbers had been reduced to about the same population at this time last year.

Porcupines. About 30 porcupines were killed by various members of the refuge staff during the period, and no substantial change from the numbers of last year can be reported.

Other species. Jackrabbits have increased from five to ten percent and cottontails are about 10 percent more abundant this spring. Localized field mice damage about the headquarters area to sod and perennial flowers exceeded that of 1952, and the numbers of other rodents seems to have increased slightly.

E. Predaceous Birds, including Crows, Ravens and Magpies.

No changes in the numerical status of the above can be reported

other than a slight increase in ravens, especially on the Malheur Lake area.

F. Fish.

Nothing to report on this subject this year.

III REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development.

Soil and Moisture Program. Little work was accomplished during the period under the Soil and Moisture program. One hundred seventy acres of willows were cleaned from the ground and bunched for later burning in the Blitzen Valley Unit. One hundred ten acres of this area was dragged and smoothed and seeded to grass, clover and alfalfa. This clearing of willows and the seeding of the cleared ground will not only add to the attractiveness of the Valley but will furnish a lot of feed for geese and deer, most of which will be in sight of the roads and public.

Water Control Project. The accomplishments under this project during the report period are as follows: Six and one-fourth miles of laterals were cleaned as was 46,432 lin. feet of large canal. Seven cement canal turnouts were provided, one 48 inch pipe with headwalls installed and 3,380 cubic yards of diking accomplished. The laterals cleaned were all in the Blitzen Valley. The canal work was largely on the West Side canal at the P-Ranch, from just above 5-Mile Spring to Witzel Lane. All of the cement turnouts were in the Blitzen Valley Unit of the refuge. The 48" pipe was installed in the east side of the Little Sagebrush Field, replacing a large stone check in the slough that returns most of the Diamond Water to the Blitzen River just above Busse Dam. This was an important improvement as when the water becomes low in the Oliver Spring area ponds, there was a continued seepage through this rock check which lowered the water too rapidly. By the same token, on short water years, this Diamond water largely seeped away without backing over the country desired. The diking under this program was largely about Sod House replacing and strengthening dikes damaged by the wear and tear of time and the high water of a year ago.

Emergency Storm Damage. During the report period, replacements were provided as follows under the storm damage program: Ten thousand seven hundred cubic yards of earth on roads, dikes and canals. Seven headgates were replaced as were two cattle guards. Fifty square yards of revetment were placed about structures and on banks. This period will largely bring the storm damage project to a close as the fund is pretty well spent. The completion of some of the jobs started will be accomplished in May. This, largely, is revetment and backfill of the 5-Mile structure upon completion of the cement work and the removal of the forms.

Public Use Building. Nothing was actually accomplished on the ground toward active construction of this building. Plans are in the mill and some exploring has been done toward securing carpenter labor, stonemasons etc., so that when the materials are received that work may not be delayed.

Double-O Storage Building. Bids have been let for the purchase of this building and the location has been selected and some ground work done toward the footings on which to erect the building.

Fencing. Nine fourteen- and sixteen-feet board gates were made and three of these gates were hung. In hanging these gates, the posts were juniper well set in cement and rock and the hinges were made from heavy iron so that a lasting job is expected of these improvements. One of these gates was hung in connection with the installation of a new cattle guard near the P-Ranch orchard.

P-Ranch Truss Bridge. Owing to the water elevation, no attempt was made during this period to construct this bridge. If water conditions remain as they are, undoubtedly this structure may be accomplished during the latter part of June.

Repair of Roads, Bridges and Revetments. Under this project, 420 cubic yards of road surfacing was hauled, two cattle guards repaired and one bridge rebuilt during the period. When favorable weather provides suitable conditions, much blading of roads is planned as very little work has been accomplished so far owing to the hard dry surface of all roads.

Building repair and improvement. Most of the building work during the period has been diverted toward the new shop building. The floor and approaches were poured, the hoist installed, light plant block provided, wiring completed, air piped about and many other items done. The new building was moved into and repair work is being accomplished in the new shop. Work bench and storage bins and shelves have been provided. Considerable work is required to complete this project but all possible time is put in toward the completion of this building and we hope that by another report period that this project may be reported as fully complete.

Repairs to Equipment. Subsequent to the time Mr. Sanderson reported for duty, most of the time has been devoted to important routine equipment repair work and safety and five thousand mile checks. A major overhaul was given Chevrolet dump truck I-16025 which included a short block end considerable body work. A number of lightplants and vehicles will require considerable work just as soon as time will permit.

B. Plantings.

Cultivated Crops. During April, 119 acres of rye, 105 acres of barley, 135 acres of oats, and 50 acres of wheat were planted. In addition, considerable ground was ready for seeding and indications are

that the grain planting project will be donw well before the end of May. Owing to the dryness of the soil, it will be necessary to irrigate most of the grain up as there was not sufficient water in the river for the usual irrigation of the ground prior to farming. Some severe frosts were experienced on the earlier grain planted but in all likelihood this grain was not sufficiently advanced to do much damage.

IV ECONOMIC USE OF THE REFUGE

Owing to the mildness of the weather and the excellent forage growth on the ground, this period was one of the most favorable winter pasture periods of record. Excellent utilization was had and particularly of the rougher types of forage such as spiked bulrush and giant rye. Stock did exceedingly well and remained on the refuge pasture to late in the season. Even though the weather during the period was characterized by mildness, spring growth was at least three weeks late and much cold frosty weather was experienced during the latter part of March and all during April, which had a tendency to retard plant growth.

General range conditions look rather bleak on April 30 as very little water is available on the spring range for cattle and not much new grass is in evidence. This is the first year that deer have been coming into the refuge from the foothills during the springtime for water.

V FIELD INVESTIGATION OR APPLIED RESEARCH

A. Progress Report.

1. Muskrat Management and the Fur Harvest.

Anticipating a low catch of muskrats on Malheur Lake because of unfavorable ice conditions, permission was obtained to continue trapping until March 31, so that about forty-five days of trapping by boat was possible after the end of the regular trapping season. The advantages of open-water trapping were revealed in the fact that about two-thirds of the total muskrat catch occurred during the period following the close of the regular season.

Despite the extension of the regular season, the low fur prices, shortage of capable trappers and unfavorable trapping conditions prevented the realization of the recommended minimum take of 16,000 muskrats as set forth in the FUR HARVEST QUOTAS FOR THE 1952-53 TRAPPING SEASON. As a consequence, much of the harvestable surplus of muskrats has remained to further reduce the already sparse stands of hardstem bulrush throughout much of Malheur Lake. No occurrence of disease or unusual strife among the muskrats has been noted this year, and with an average production this summer, a population this fall comparable with the extremely high numbers of the winter of 1949-50 (when nearly 17,000 were trapped) might reasonably be expected.

This population increase has been gradual rather than irruptive, and seems to have resulted from inadequate trapping pressure during the past three winters and increasing water levels and acreages of bulrush, bur-reed and cat-tail. For the first time in nearly ten years the west third of the lake is liberally dotted with muskrat houses, over 75 of them being visible from the Narrows area. This area, located to the west of Graves Point, has been greatly improved for waterfowl use by the heavy muskrat population, providing more open water feeding areas for ducks and geese and furnishing many nesting situations for the latter. This entire area is relatively shallow, averaging around two feet in depth, and is dominated with bur-reed, though also containing a substantial acreage of cat-tail, bulrush and Baltic rush. The muskrat population in this part of Malheur Lake, though sizable, is yet in good equilibrium with the available plant food supply, for this shallower part of the lake basin has a much higher ratio of vegetation to open water, perhaps as much as 10:1, while the ratio in the rest of Malheur Lake would be only about 1:10-12.

The relatively low value of muskrat pelts during the last two or three years has provided little inducement for our better qualified trappers to continue their efforts at Malheur Refuge under our present 50-50 share arrangement. The exceedingly hard work, long hours and hazards of thin ice for trappers during most winters, in combination with the currently low fur prices, suggest that a re-evaluation of our 50-50 shares policy may be advisable, and unless we have good reason to anticipate a rise in pelt price of $.40 or more, it may be necessary to change the sharing to 60 percent of the pelts to the permittee trapper, in order to induce them to continue trapping for us.

2. Switchgrass Introduction.

About 50 pounds of switchgrass (Panicum virgatum) rootstock material was picked up at Crescent Lake Refuge during the latter half of March, and was planted in the sand dunes to the east of Martha's Lake on the Double-O Ranch Unit. The material seemed to survive the trip in good condition, but because of the cold spring, still was dormant at the end of the period. In general, the locations chosen for this latest material was limited to those situations in which previous plantings showed the greatest success, and in addition, some was planted on even lower and wetter ground.

3. Habitat Improvement for Nesting Canada Geese.

Plans are now being prepared for development of the marshy appendage of an impoundment to the west of Boca Lake in Unit 3 in what is known as the Dredger Field. This marsh is heavily grown to cat-tail and has not been occupied by nesting Canada geese for several years. This "pilot project" at Malheur Refuge is intended to determine the utility of artificial islands in increasing the habitability of the more closed type marshes for nesting Canada geese. In this phase of the experiment, artificial islands, varying in size, elevation, shape, profile, frequency of distribution, distance from pond shoreline,

distance from open water, and eventual vegetation cover, will be constructed. The immediate objective of this experimental work is to learn whether or not Canada geese will make use of the artificial islands in habitat which otherwise would not be occupied by nesting pairs. If the artificial islands are occupied, the experiment may reveal, through the choice of certain islands, influences of the various characteristics listed above on selection of the islands by nesting geese. This information would be valuable later in carrying on artificial island construction effectively on a larger scale in other parts of the refuge.

Earth-moving work on this project is planned to commence sometime late in August or September when the marsh should be dry enough to bring in the heavy equipment. Although a bulldozer would be preferable for work of this nature, the marsh probably will be too wet and a dragline crane will likely be used. An attempt will be made to keep the marsh and associated pond as dry as possible during the summer to reduce the use of mats with the crane.

VI PUBLIC RELATIONS

A. General.

Generally, recreational and other visitors were short in number because of the inclement weather conditions, during the part of the period that such visitors usually arrive on the area.

The State angling season will not open until May 2, which eliminated this class of visitor during the latter part of the period.

On April 9-10, Professor Lee Kuhn of the Fish and Game Department of Oregon State College and a group of 27 students visited the refuge. This is an annual event for the graduating class. Student Assistant Robert C. Sayre accompanied the group about the refuge and Superintendent Scharff spent some time with them discussing the refuge in general, policies, objectives and how the area fit into the refuge scheme of things.

During the period of April 17-19, Dr. Lyle Standford of the College of Idaho, with a group of over 30 students, faculty members and guests visited the refuge. Dr. Standford always brings an enthusiastic group with him and his trip is looked forward to by refuge personnel as this is one of the most pleasant annual associations enjoyed during the year.

B. Refuge Visitors.

Official visitors and those of special note during the period were as follows:

January

19 Sgt. Kirkland, Oregon State Police, Baker, Oregon
Ferrin M. Woll, Ore. State Dept. of Agr., Ontario, Ore.
22 E. C. Stoneman, Predator & Rodent Control, Burns, Ore.

February

15-16 Gordan Stewart, Predator & Rodent Control, LaGrande, Ore.
20 D. L. Hopkins, Oregon State Tax Comm., Salem, Oregon
21 F. Sheldon Dart, Refuge Mgr., Deer Flat Refuge, Nampa, Ida.
22 Ted Barber, Oravada, Nev., Horse Wrangler, Hart Mtn. Refuge
24 F. Sheldon Dart, Refuge Mgr., Deer Flat Refuge, Nampa, Ida.
27 Sgt. Kirkland, Oregon State Police, Baker, Oregon
Duane Hamby, Oregon State Police, Burns, Oregon

March

10 Clean Clark, Forest Supervisor, Malheur Forest, John Day, Ore.
Mike Palmer, Forest Ranger, Burns, Oregon
13 J. L. Cromwell, Boise, Idaho, U. S. Game Management Agent
T. R. Lawhorn, U. S. Game Management Agent, Pendleton, Ore.
16 Jack Binford, Pres. State Chapter Isaac Walton League, Portland, Oregon.
Lyle B. Watts, Secy. State Chapter Isaac Walton League, Portland, Oregon.
Eugene Wunderlich, Bureau of Land Management, Burns, Ore.
26 Herbert Fawcett, County Road Master, Burns, Oregon.
27 Milton Sheeley, Oregon State College, Corvallis, Oregon.
31 Floyd Lee, Maintenance Man, Hart Mt. Refuge, Lakeview, Ore.

April

7-8 Zell Parkhurst, Fisheries Biologist, Portland, Oregon.
Melvin Smith, Fisheries Biologist, Portland, Oregon.
9 Henry A. Hauser, Wn. State Game Dept., Spokane, Washington.
13-14 James (Dinty) Moore, Oregon State Extension Service, Corvallis, Oregon.
15 Henry Schneider, Ore. State Game Dept., Corvallis, Oregon.
Arthur S. Einarsen, Ore. State Research Unit, Corvallis, Ore.
Raymond Glahn, Pilot Biologist, Sacramento, California.

C. Refuge Participation.

Refuge Superintendent Scharff attended Director Meetings of the Harney County Chamber of Commerce on January 6 and 9.

Superintendent Scharff attended a Harney County Chamber of Commerce Directors' Meeting on February 25.

Superintendent Scharff attended the District 2 Grazing Board Meeting on January 28 and 29.

On February 19, a grazing appeal meeting of the District 2 Grazing

Board was attended by Superintendent Scharff.

An Isaac Walton League meeting of the Harney County Chapter was attended on March 16 by Superintendent Scharff. Jack Binford, State President and Lyle Watts, State Secretary were in attendance at this meeting.

On March 25, a Directors' meeting of the Harney County Chamber of Commerce was attended.

The annual Water Forecast Meeting was attended by Superintendent Scharff in Burns on April 1.

On March 28, the annual snow survey trip was made to the Steens Mountain courses. This trip was made by aid of the over-snow vehicle furnished by Cooperative Snow Surveys. Ray C. Erickson represented the refuge on this trip.

VII OTHER ITEMS

A. Items of Interest.

During the early part of January, Noel Cagle completed delivery of a shovel to the Stillwater Refuge at Fallon, Nevada, by use of the semi-trailer unit.

The period of January 12-21 was spent in the Regional Office by Refuge Superintendent Scharff on various administrative and personnel matters.

During the period of January 25-27, Russell Wilson, Refuge Maintenance Man, made a trip to Clackamas by truck for a load of shingles and soil pipe.

Refuge Maintenance Man Russell J. Wilson made a trip by truck with a load of grain for Deer Flat Refuge and a return haul from Pocatello, Idaho, of barbed wire for the Malheur and Hart Mountain Refuges during the period of February 3-6.

Refuge Clerk Eugene P. Heath, Jr., attended a Clerk's Conference held in the Regional Office during the week of February 9-13.

On February 16, the Deer Flat Refuge truck called for a load of grain.

On March 17, Frank A. Sanderson reported as Refuge Mechanic. The refuge had been without a mechanic for a considerable period of time and Frank is certainly a valuable addition to the staff.

On March 20, Bert Harwell, nationally known wildlife photographer and bird caller, arrived at the refuge on a photography assignment for

Disney. Since being here, Bert has shown a number of pictures and created a lot of interest in the birdlife frequenting the refuge.

During the period of March 23-30, Noel Cagle made a trip with the Regional semi unit to the Bison Range and hauled two Dumpsters to the Stillwater Refuge, Fallon, Nevada.

Ray C. Erickson returned from a winter's detail in the Washington office on March 23.

On April 6, Student Assistant Robert C. Sayre reported for duty. Robert is a student at Oregon State College.

On April 10, Bert Harwell showed his picture "Canada West" to the Oregon State College Big Game class, refuge personnel and neighbors. This was a most enjoyable and educational picture.

On April 9-13, Biologist Ray C. Erickson attended the Pacific Flyway Conference held in Elko, Nevada, and thence to Ruby Lake Refuge on waterfowl and grazing problems.

On April 15, Biologists Erickson and Glahn spent the day in aerial censuses and photography work.

On March 26, delivery was taken on a new jeep pickup and jeep station wagon. Delivery of these pieces of equipment was made in Burns.

During the period, the Frenchglen Store changed permittees. Elmer T. Ash is the new permittee. Elmer has worked for the refuge most of the time since early in 1935 in the capacity of machine and dragline operator. His health is such that he is unable to operate the dragline for any prolonged periods, which made it necessary to seek other means of employment.

Respectfully submitted,

J. C. Scharff
Superintendent

June 3, 1953
Report completed

Approved Regional Office

B. Photographs.

Fig. 1. Canada goose nest on Cole Island Dike, Unit 12. April 20, 1953.

Fig. 2. Newly hatched brood of geese on Malheur Lake. April 20, 1953.

Fig. 3. Carcass of Canada goose upon which a golden eagle had been feeding. 3/31/53.

Fig. 4. Transferring gear from jeep pick-up to "Snow-cat" for annual snow survey trip up Steens Mountain. March 28, 1953.

Fig. 5. Nest and eggs of Farallon cormorant on north part of Malheur Lake, showing uneaten roach. April 20, 1953.

Fig. 6. Nest of American egret in hardstem bulrush on Malheur Lake. April 20, 1953.

Figs. 7 to 10. Construction stages of the 5-mile headgate, Unit 2, Malheur Refuge. March 25 to May 10, 1953.

WATERFOWL

REFUGE Malheur National Wildlife MONTHS OF January to April, 1953

(1) Species	(2) First Migrants Seen		(3) Peak Concentration		(4) Last Migrants Seen		(5) Young Produced		(6)
Common Name	Number	Date	Number	Inclusive Dates	Number	Date	Broods Seen	Estimated Total	Estimated Waterfowl Days
1. Swans:									
Whistling swan	6	1/29	8,000	3/20-26		4/30			225,050
Trumpeter swan			7	4/30	Resident				
			8,007						
2. Geese:									
Canada goose	Winter resident		15,000	3/25-30	Resident				727,300
Cackling goose									
Brant									
White-fronted goose	35	2/21	1,300	3/ 1-15	10	4/30			38,395
Snow goose	10	2/ 6	10,000	3/20-24	30	4/30			336,350
Blue goose									
			26,300					Total Geese	1,102,045
3. Ducks:									
Mallard	Winter resident		30,000	4/ 1- 4	Resident				1,180,200
Black Duck									
Gadwall	Winter resident		25,000	4/30	Resident				3,286,780
Baldpate	Winter resident		5,000	4/ 1- 5	Resident				137,060
Pintail	Winter resident		30,000	3/28-4/6	Resident				1,235,745
Green-winged teal			8,000	4/ 1- 3	Resident				138,040
Blue-winged teal									
Cinnamon teal	4	3/25	3,000	4/30	Resident				94,710
Shoveller			8,000	4/15-18	Resident				178,150
Wood duck								Total Ducks	6,250,685
Redhead			8,000	4/30	Resident				240,828
Ring-necked duck			1	4/30	~~Resident~~	4/30			10
Canvas-back			18,000	4/ 8-12	Resident				448,700
Scaup			4,000	4/10-14	Resident				119,175
Golden-eye	Winter resident		1,400	4/ 1	2	4/25			34,664
Buffle-head	Winter resident		1,000	3/31	50	4/30			27,622
Ruddy duck			1,500	4/30	Resident				64,260
Am. merganser			500	4/ 1- 8	Resident				17,570
			143,401					Total Divers	952,829
4. Coot:	Winter resident		350,000		Resident				9,517,550

3-1750
(Aug. 1952)

Form NR-1

(over)

SUMMARIES

Total Production:

Geese 0

Ducks 0

Coots 0

Total waterfowl days use during period 10,530,609 (excludes coots)

Peak waterfowl numbers 130,000

Areas used by concentrations Malheur Lake borders

Blitzen Valley ponds

Principal nesting areas this season Periphery of Malheur Lake and Blitzen Valley ponds and dikes

No. of inventories this period weekly % of refuge covered 20%

Reported by

R. C. Erickson, Biologist

INSTRUCTIONS (See Sec. 7532, Wildlife Refuges Field Manual)

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.

(2) First Seen: The first refuge record for the species during the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak Concentration: Estimated number and inclusive dates when peak population of the species occurred.

(4) Last Seen: The last refuge record for the species during the reporting period.

(5) Young Produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(6) Total: Estimated waterfowl days use (average population X no. of days present) of refuge for reporting period based. (See Sec. 7532, Wildlife Refuges Field Manual.)

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since these data are necessarily based on an analysis of the rest of the form.

INT.-DUP. SEC., WASH., D.C.

26013

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge Malheur National Wildlife Months of January to April 1943

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Eared grebe	3	4/ 3	4/30	Resident						3,000
Western grebe		3/27	4/30	Resident						1,000
Pied-billed grebe		4/19	4/30	Resident						400
White pelican	3	3/26	4/30	Resident						600
Farallon cormorant	1	3/31	4/30	Resident						900
Treganza's heron	Winter resident		4/30	Resident						400
American egret			4/30	Resident						400
Brewster's egret			4/30	Resident						150
Black-cr. night heron			4/30	Resident						700
American bittern			4/30	Resident						300
Sandhill crane	7	2/15	3/31	Resident						1,000
II. Shorebirds, Gulls and Terns:										
Killdeer	Common	3/ 1	4/10	Resident						2,000
Long-billed curlew	2	3/24	4/30	Resident						100
Western willet	1	4/15	4/30	Resident						20
Avocet	2	3/30	4/30	Resident						200
Wilson's snipe			4/30	Resident						200
California gull			4/30	Resident						6,000
Caspian tern	1	4/19	4/30	Resident						1
Greater yellow-legs	2	3/26	4/30	4/30						100

(over)

(1)	(2)		(3)		(4)	(5)	(6)
III. Doves and Pigeons:							
Mourning dove			250	4/30	Resident		600
White-winged dove							
IV. Predaceous Birds:							
Golden eagle							12
Duck hawk							
Horned owl							40
Magpie							2,500
Raven							150
Crow	2	2/22					200
Swainson's hawk							30
Red-tailed hawk							16
American rough-leg							100
Ferrug. rough-leg							6
Turkey vulture	3	3/27					50
Osprey	1	4/29					1
Bald eagle	2	4/17					2

Reported by H. C. Erickson, Biologist

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

INT.-DUP. SEC., WASH., D.C.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge Malheur National Wildlife Months of January to April, 19[illegible]

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked pheasant									4,000	
Valley quail									1,500	
Sage hen									30	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge Malheur National Wildlife Year ending April 30, 1953

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs						(5)
								Share Trapping						Total
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re-stocking	For Re-search	Permit Number	Trappers Share	Refuge share	Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	Population
By share trappers:	Trapping Unit:													
Muskrat	Malheur Lake #1			400					200	200	200			
	#2			703					352	351	351			
	#3			400					200	200	200			
	#4			2000					1000	1000	1000			
	#5			3363					1682	1681	1681			
	#6			2920					1461	1459	1459			
	#7			1230					615	615	615			
Mink	Malheur Lake			7					5	2	2			
By refuge personnel:														
Muskrat	Blitzen Valley			2						2	2			
Mink	Blitzen Valley			62						62	62			
Beaver	Blitzen Valley			34						34	34			
Following taken as predators and not skinned due to low value of pelts:														
Raccoon				10										
Skunk				10										
Coyote				2										
Bobcat				32										

* List removals by Predator Animal Hunter

REMARKS: Totals:

	Fur Harvest	Trappers Share	Refuge share	Total Refuge Furs Shipped
Muskrat	11018	5510	5508	5508
Beaver	34		34	34
Mink	69	5	64	64
Raccoon	10			
Skunk	10			
Coyote	2			
Bobcat	32			

Reported by [illegible]

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

(1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)

(2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headingslisted.

(4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.

(5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.

REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

116007

3-1570
NR-8a

REFUGE GRAIN REPORT

Refuge [redacted] Months of [redacted] thru [redacted] 19[redacted]

(1) VARIETY	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED USE		
				TRANS-FERRED	SEEDED	FED	TOTAL		SEED	FEED	SURP.
[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	[redacted]	[redacted] 75		[redacted]	
[redacted]	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]		[redacted] 1400	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]		[redacted] 800	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]		[redacted]	[redacted]	[redacted]		[redacted]	[redacted]			

(8) Indicate shipping or collection points [redacted]

(9) Grain is stored at [redacted]

(10) Remarks [redacted]

NR-8a REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)--55 lbs., Corn (ear)--70 lbs., Wheat--60 lbs., Barley--50 lbs., Rye--55 lbs., Oats--30 lbs., Soy Beans--60 lbs., Millet--50 lbs., Cowpeas--60 lbs., and Mixed--50 lbs. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

(1) List each type of grain separately: Corn, wheat, proso millet, etc. Include only domestic grains; aquatic and other seeds will be listed on NR-9.

(3) Report all grain received during period from all sources, such as transfer, share-cropping, or harvest from food patches.

(4) A total of Columns 2 and 3.

(6) Column 4 less Column 5.

(7) This is a proposed breakdown by varieties of grain listed in Column 6.

(8) Nearest railroad station for shipping and receiving.

(9) Where stored on refuge: "Headquarters grainary", etc.

(10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.